

and organic substances. The little book on "Practical Methods of Inorganic Chemistry," by Dr. F. M. Perkin, embodies many familiar inorganic preparations and a few useful quantitative estimations which will be of real service in the laboratory.

An added interest would have been given by a reference to the original author of each preparation. Whilst the book may be confidently recommended, attention should be directed to the numerous errors which have escaped correction. In turning over the pages mistakes have been found on p. 13, in which a *tarred* filter-paper is recommended, and on the following pp. 24, 47, 48, 49, 50, 55, 63, 76, 80, 104, 131, 139. Brinn (p. 63) should be Brin, Woolf (p. 92) should be Woulfe, and Golschmidt (p. 121) Goldschmidt. Urea is surely not diamido carbonic acid (p. 68). It is not an acid, but an amide.

The volume on "Chemical Analysis," by Drs. Briggs and Stewart, is one of the University Tutorial Series, and, like its companions, is intended for the use of candidates for university examinations. The authors do not lose sight of this important fact, and the student is encouraged by an occasional reminder that his interests, as well as those of the science, are properly served. "In case a student is told that only one metal is to be looked for, the process of analysis is of course much simplified," and further, "it is foolish to follow up an unsatisfactory result in an examination." That the book fulfils its purpose is clear from the numerous editions which it has seen, and, when all has been said, it is a thoroughly sound work on the subject with which it professes to deal. If it should fail in its aim to teach the principles of chemistry the fault does not lie with the authors, but with those examiners who insist upon a pabulum of this kind for their candidates.

Dr. Sherman's book on "Methods of Organic Analysis" belongs to an entirely different category from the foregoing. The subject of analysis is specialised, and appears in its proper *rôle* as the handicraft of the well-trained chemist. The book is chiefly devoted to the analysis of foodstuffs and the more common organic materials. The methods are minutely described, sources of error are pointed out, and references to original literature are given. The book is evidently compiled with care and from personal experience, and should be a valuable adjunct to the organic laboratory.

J. B. C.

COTTON IN AMERICA.

Cotton: its Cultivation, Marketing, Manufacture, and the Problems of the Cotton World. By Prof. C. W. Burkett and C. H. Poe. Pp. ix+331. (London: A. Constable and Co., Ltd., 1906.) Price 8s. 6d. net.

THE story of cotton as told by Prof. C. W. Burkett, professor of agriculture in the North Carolina College of Agriculture and Mechanic Arts, and by Mr. C. H. Poe, the managing editor of a newspaper which caters for the American cotton

farmer, is a story of great interest, though very incomplete. The book would be more correctly described by the title of "American Cotton," for India, Egypt, and other cotton fields, and the efforts of England to widen the sources of supply by producing cotton within the British Empire, are little more than subjects for the authors' derision.

The reader is to understand that there is no cotton in the world like American cotton; that there is no soil on earth so suitable for growing cotton as American soil; that nowhere on the globe are cotton farmers equal to those of America; and that the only requisite to constitute an ideal state of things is for all the cotton farmers to join Mr. Harvie Jordan's association, and to regulate the acreage and the price according to the principles of that association. What those principles are the authors do not define, but in the official journal of the association for September 27, 1906, they are stated thus:—

"Dismiss all consideration of spinner, or consumer; let the spinner look out for himself and the producer for himself. This is business."

Further "business," much of the same nature, is indicated by the authors in a chapter on stopping leaks in cotton profits, wherein they say "the greatest leak of all is the shipping of 60 per cent. of our cotton to Europe instead of turning it into the finished product here."

If it is the ambition and the determination of the United States of America not to let any cotton "leak" out of the country, and, according to the authors, the fibre cannot be successfully grown elsewhere, it would be interesting to learn what they propose to do with the cotton-manufacturing industry of Europe! On the Continent "American greed" has become a by-word, but so far English people have had no cause so to express their opinion of Americans, and we refuse to believe that the authors of "Cotton" express anything more than a narrow, selfish class interest in their advocacy of American cotton for Americans, and at such a price as the growers' associations determine.

The value of the book lies in section ii., which contains a description of how the cotton-plant grows and is grown. To cotton farmers this section alone is worth the 8s. 6d. asked for the book. It treats of the botanical structure of the plant, seed selection, environment, climatic conditions, fertilisers, farm tools required, injurious insects, planting, cultivating, picking, and the cost of making cotton.

In speaking of ginning, we are told the tendency is to run the gins at high speed, but that this, though increasing the output, decreases the value of the lint. Whilst the great speed of the power gins is held up for admiration and wonder, it has to be confessed that "the old gin, when run by horse-power, was not open to this objection (maltreating fibre) urged against high steam power. Then you never heard of cut or broken fibres, or of crimped or knotted lint, such as is now caused by the impact of the saws when the cylinders rotate at high speed." There is a further confession that "no noteworthy improvement

in the cotton gin has been made since it was introduced"—more than 100 years ago—and an authority is quoted as saying that "the saw gin actually wastes or destroys over 6 per cent. of all the cotton raised in the Southern States, meaning the destruction each year of nearly 40,000,000 dollars worth of property belonging to the farmers of the South." By other quoted authorities it is stated that "the saw gin destroys over 40 per cent. of the initial strength of the cotton fibre." It is also pointed out that, besides this waste, cotton can only be pressed to 14 lb. per cubic foot at the ginneries.

"A fortune," say the authors, "awaits the man who will invent a compress requiring small horsepower, so that the bales, with one handling at the gin, may be compressed tightly enough for export purposes; just as a fortune awaits the man who will invent a roller gin for upland cotton by which the present waste and the barbarous laceration of the fibre may be obviated."

Such a statement is strong testimony of the authors' lack of knowledge of cotton affairs. Do they not know that there is a press in their own country which can be affixed to a gin and turn out a bale compressed to 35 lb. per cubic foot, and that it only takes 5 h.p. to drive it? Do they not know that in England gins are built which neither cut the cotton nor weaken the fibre, whether used on the long staple of Egypt or the short staple of India? Do they not know that American trusts are trying to defeat one of these longed-for improvements, and American tariffs prohibit the other?

The remarks about baling are specially interesting as coming from friends of the farmer. After observing that "like the gin, the baling press has been materially improved in rapidity and in efficiency" (they told us on a previous page that no noteworthy improvement to the gin had been made since it was introduced, and that the old horse-driven gin did better work than the modern steam-power gin), they remark that "as a rule, the American bale is not prepared with such care as its importance demands," that the covering is torn, allowing the lint to drop out, that on bringing it back from the gin the farmer puts it under the apple tree or in the barn lot, or in some open, exposed place, "where rain and dust attack and damage it, and even pigs are allowed access to it on which to clean their muddy backs."

After making such a charge against the business capacities of the cotton farmer, is it not stretching a point to ask us to believe that these people who so mismanage their own business can by combination regulate the buying and selling of cotton on better or more economical lines than on the old law of supply and demand?

"Cotton" is very well printed, its illustrations are excellent, but from its numerous examples of bad English, the rhetorical extravagances indulged in by the authors, and the narrow views they take of political economy as affecting nation and nation, we are afraid their chances of being accepted as authoritative contributors to human knowledge are greatly jeopardised.

BOTANICAL DICTIONARIES.

(1) *Illustriertes Handwörterbuch der Botanik*. By Several Authors, and with the collaboration of Dr. O. Porsch and C. K. Schneider. Pp. vii+690; with 341 figures. (Leipzig: Engelmann, 1905.) Price 16s. net.

(2) *Dizionario di Botanica Generali*. By Dr. Guglielmo Bilancioni. Manuali Hoepli. Pp. xx+926. (Milan: U. Hoepli, 1906.) Price L10.

(1) IT would be an interesting question to discuss in its technical connections what are the differences between a glossary, a dictionary, and an encyclopædia of botany, but space will not allow of that, and we may pass on to say that this heavy book, typically German and written by Germans for Germans, stands in sharp contrast, with its unequal paragraphs—for instance, more than two pages and a half are devoted to *Drüsen*, none to *Zelle*, and only half a page to *Zell-kern*—to the light and neat English "Glossary of Botanic Terms" of our own countryman, Mr. Daydon Jackson.

The authors admit that the book has been designed to exclude antiquated terms on the one hand, and the most modern terms of the English-American and French literature on the other; they anticipate the question, "How are we to draw the line?" and have decided that all purely descriptive expressions shall be excluded. But what are we to say to a "Handwörterbuch" from which all terms belonging to biochemistry and micro-technique, &c., except a few arbitrarily selected general terms, such as "swelling," "fermentation," "catalysis," "turgescence," &c., are excluded?

That the book contains an enormous amount of carefully collected information is sufficiently guaranteed by the names of the collaborators, but it is not a dictionary in the true sense of the word, and it is a very incomplete encyclopædia. The illustrations are good, but the majority of them are old and well-worn friends transferred bodily from the text-books of Sachs, De Bary, Franck, and others. To the ordinary student in this country the book can have little value; to the expert and experienced investigator it will have sufficient attractions for him to place it on his shelves. Of course, the position it may be accorded in Germany, for the German student, is another matter with which we have nothing to do.

(2) Here we have a neatly-got-up book far more in accordance with the idea of a dictionary, though even here some of the paragraphs are too long and drawn out in the form of encyclopædic articles.

The preface begins "*Vi fu chi affernio che il più interessante di tutti i libri è un dizionario.*" This may be so, in spite of the story—apparently unknown to the author—of the Scotchman who was found steadily perusing a dictionary from cover to cover with the sole complaint that the matter of the story seemed somewhat disconnected. A useful feature of the book is an appendix of biographical sketches of botanists, living and dead; this is necessarily very short and incomplete. There are no illustrations.